



SCHOOL OF LAW

Interdisciplinary Environmental Clinic

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Via email to apcprid@dnr.mo.gov

Re: Comments on Draft Rule 10 CSR 10-6.261 Control of Sulfur Dioxide Emissions and Associated Regulatory Impact Report

To whom it may concern:

On behalf of the Sierra Club, we submit the following comments on the Missouri Department of Natural Resources' ("DNR") drafts of new rule 10 CSR 10-6.261 and the associated Regulatory Impact Report ("RIR"). These comments focus on DNR's improper approach in the draft rule and RIR to the preparation of a nonattainment State Implementation Plan ("SIP") for the Jefferson County sulfur dioxide ("SO₂") nonattainment area ("NAA"). **DNR's current approach ignores the impacts of the largest SO₂ sources in and affecting the NAA by excluding the vast majority of the NAA from the department's attainment demonstration modeling. This modeling only attempts to demonstrate attainment in 1.6 km² (0.4%) of the NAA, in violation of the Clean Air Act, and fails even to achieve that exceedingly-limited, unlawful goal.** Additionally, the RIR indicates DNR's tentative intent to apply to EPA for a clean data determination. Because the Jefferson County NAA is not currently in attainment, **a clean data finding is inappropriate and should not be pursued.**¹

I. DNR's Approach Jeopardizes Public Health in Jefferson County.

DNR's approach would deprive Jefferson County residents of the central protection promised by the Clean Air Act since 1970 – the right to breathe air that meets the National Ambient Air Quality Standards ("NAAQS") and therefore does not pose a threat to public health. In order to "protect public health with an adequate margin of safety," **EPA revised the SO₂ primary NAAQS in 2010 to replace the 24-hour and annual standards with a short-term, 1-hour standard.**² **In an exposure analysis focused on at-risk populations in St. Louis, EPA determined that SO₂ exposure for as short as 5-10 minutes can cause adverse health effects to asthmatics.**³ EPA established the

¹ **We note with disappointment that DNR will not submit the SO₂ nonattainment SIPs for Jackson and Jefferson Counties by the statutory deadline of April 6, 2015.**

² EPA, Primary National Ambient Air Quality Standard for Sulfur Dioxide; Final Rule, 75 Fed. Reg. 35520, 35521 (June 22, 2010).

³ *Id.* at 35536.

short-term, 1-hour standard for the SO₂ primary NAAQS in order to protect public health and limit adverse respiratory effects on at-risk populations, including children, the elderly, and asthmatics.⁴

Short-term SO₂ exposure is associated with a variety of negative health effects:

- Current scientific evidence links health effects with short-term exposure to SO₂ ranging from 5-minutes to 24-hours. Adverse respiratory effects include narrowing of the airways which can cause difficulty breathing (bronchoconstriction) and increased asthma symptoms. These effects are particularly important for asthmatics during periods of faster or deeper breathing (e.g., while exercising or playing).⁵
- Studies also show an association between short-term SO₂ exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses - particularly in at-risk populations including children, the elderly and asthmatics.⁶

DNR's RIR recognizes the dangers of exposure to SO₂ concentrations exceeding the NAAQS:

- According to EPA, children, the elderly, and asthmatics are the most sensitive to SO₂ exposure. For these populations, SO₂ exposure can result in decreased lung function, increased respiratory symptoms, and more hospital admissions and emergency room visits.⁷

Additionally, SO₂ emissions contribute to the creation of fine particulate matter (PM_{2.5}), exposure to which is linked to numerous serious health effects and premature death.⁸ The public health threats posed by PM_{2.5} pollution include aggravated asthma, heart attacks, difficulty breathing, coughing, and decreased lung function.⁹ According to EPA, "evidence is sufficient to conclude that the relationship between long-term PM_{2.5} exposure and mortality is causal, specifically infants/children and older adults are most at risk."¹⁰

⁴ *Id.* at 35550.

⁵ EPA, Fact Sheet: Revisions to the Primary National Ambient Air Quality Standard, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide, available at <http://www.epa.gov/airquality/sulfurdioxide/pdfs/20100602fs.pdf> (last visited February 3, 2015).

⁶ *Id.*

⁷ DNR, Regulatory Impact Report In Preparation For Proposing New Rule 10 CSR 10-6.261 ("RIR"), §3.

⁸ DNR notes in the RIR that reducing SO₂ emissions "may have the important co-benefit of reducing the formation of fine sulfate particles, which pose significant public health threats." RIR, §10.

⁹ EPA, Health information on Particulate Matter, available at <http://www.epa.gov/pm/health.html> (last visited February 3, 2015).

¹⁰ EPA, Integrated Science Assessment for Particulate Matter, EPA/600/R-08/139F (Dec. 2009), at 7-96, available at http://www.epa.gov/ncea/pdfs/partmatt/Dec2009/PM_ISA_full.pdf (last visited February 3, 2015).

An estimated 17,418 adults and 5,434 children in Jefferson County suffer from asthma.¹¹ Because the Doe Run Company – pursuant to an agreement with DNR – has acquired nearly all of the residences surrounding the Herculaneum lead smelter, nearly all of Jefferson County's asthmatics live outside of the 1.6 km² area around the Mott Street monitor that is the focus of DNR's attainment demonstration modeling. Figure 1 (see next page) shows the DNR "attainment" area and the Doe Run Herculaneum buyout zone, which encompasses a significant portion of the area. This indicates that all or nearly all of Jefferson County's asthmatics live within the 99.6% of the NAA that DNR's modeling ignores. While recognizing the risks posed by exposure to SO₂ at levels above the NAAQS, DNR's draft rule and SIP approach described in the RIR fail to protect this vulnerable population.

II. DNR's SIP Approach for the Jefferson County Nonattainment Area, as Described in the Regulatory Impact Report and Reflected in the Draft Rule's Emission Limits, is Unlawful.

The emission limits in the draft rule are designed solely to demonstrate attainment at the Mott Street monitor, and are woefully inadequate to demonstrate attainment throughout the NAA. With the rule serving as the vehicle for permanent, enforceable emissions limits for the Jefferson County nonattainment SIP, the SIP will not comply with the Clean Air Act. Furthermore, the limits do not even support DNR's uber-modest goal of demonstrating attainment solely at the Mott Street monitor. DNR must substantially tighten the emission limits in the draft rule and possibly add limits for additional sources in order to submit an acceptable SIP that demonstrates attainment throughout the NAA.

A. The Emission Limits in the Rule Must Be Sufficient to Support an Attainment Demonstration for the Entire Nonattainment Area, Not Just at the Violating Monitor.

The RIR states, "[t]he SO₂ emission limits in Table I for Ameren Missouri's Labadie, Meramec, and Rush Island power plants ensure compliance at the Mott Street SO₂ monitor and support the attainment demonstration for the Jefferson County nonattainment area."¹² To determine the emission limits in Table I, DNR performed air dispersion modeling focused on a 1.25 x 1.25 kilometer area roughly centered on the Mott Street monitor. DNR used allowable emissions for sources within the boundaries of the NAA and for nearby sources located in Illinois, and actual emissions for nearby sources located in Missouri but outside the boundaries of the NAA. DNR then iteratively adjusted the emission rates for Ameren Missouri's Labadie, Meramec, and Rush Island power plants while keeping emission rates for all other sources fixed until the model predicted no exceedances of the SO₂ NAAQS within the modeled 1.6 km² area around the Mott Street monitor. Reductions from current allowable hourly emission rates of approximately 63%, 54%, and 46% were required for Labadie, Meramec, and Rush Island, respectively, in order

¹¹ American Lung Association, Estimated Prevalence and Incidence of Lung Disease (May 2014) at 33, available at <http://www.lung.org/finding-cures/our-research/trend-reports/estimated-prevalence.pdf> (last visited February 10, 2015).

¹² RIR, §1 (emphasis added).



Figure 1. Much of DNR's 1.6 km² "attainment" area is the largely-uninhabited Doe Run Herculaneum buyout zone.

to model compliance with the NAAQS within this area. The emission limits in Table I of the draft rule reflect DNR's modeled hourly emission rates adjusted downward to 24-hour average limits as allowed by EPA.

DNR's approach to the Jefferson County NAA is unlawful under the Clean Air Act, which requires that attainment be demonstrated throughout the NAA, not just at the violating monitor.

After EPA revises a NAAQS, each state must propose to EPA the boundaries of nonattainment areas – *i.e.*, areas within the state that contain ambient air concentrations exceeding the revised NAAQS.¹³ EPA then reviews the state's proposal and makes nonattainment area designations.¹⁴ Those designations remain in effect until the area is formally redesignated pursuant to the Clean Air Act.¹⁵ States must prepare SIPs showing how each nonattainment area will achieve the NAAQS by the relevant deadline.¹⁶ The SIP must include, among other provisions, "[E]nforceable emission limitations, and such other control measures ... as may be necessary or appropriate to provide for attainment of such standard *in such [nonattainment] area* by the applicable attainment date specified in this part."¹⁷

EPA's SO₂ nonattainment SIP guidance emphasizes the Clean Air Act's requirement that a nonattainment SIP provide for attainment throughout the designated nonattainment area:

- The attainment demonstration should also ensure that the area will attain the 2010 SO₂ NAAQS with a 3 year design value of no greater than 75 ppb *throughout the entire nonattainment area* by the statutory attainment date, through the adoption and implementation, at a minimum, of emission control measures representing RACM/RACT.¹⁸
- [F]or attainment demonstrations for the 2010 SO₂ NAAQS, the air agency should demonstrate future attainment and maintenance of the NAAQS *in the entire area designated as nonattainment (i.e., not just at the violating monitor)* by using air quality dispersion modeling to show that the mix of sources and enforceable emission rates in an identified area will not lead to a violation of the SO₂ NAAQS.¹⁹
- The modeling for the attainment demonstration should include results for a suitable network of receptors representing *the entire nonattainment area*, and should exhibit modeling showing attainment of the NAAQS *for the entire area* by the statutory deadline.²⁰

¹³ CAA § 107(d)(1)(A)(i), 42 U.S.C. § 7407(d)(1)(A)(i).

¹⁴ CAA § 107(d)(1)(B)(i), 42 U.S.C. § 7407(d)(1)(B)(i).

¹⁵ CAA § 107(d)(1)(B)(iv), 42 U.S.C. § 7407(d)(1)(B)(iv).

¹⁶ CAA § 110(a), 42 U.S.C. § 7410(a); CAA § 172(c), 42 U.S.C. § 7502(c); and CAA §§ 191-192, 42 U.S.C. §§ 7514-7514a.

¹⁷ CAA § 172(c)(6), 42 U.S.C. § 7502(c)(6)(emphasis added).

¹⁸ EPA, Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions (Apr. 2014) at 10 (emphasis added).

¹⁹ *Id.* at 11-12 (emphasis added).

²⁰ *Id.* at 12 (emphasis added).

Pursuant to the Clean Air Act, DNR proposed the boundaries of the Jefferson County NAA,²¹ and EPA approved the boundaries as proposed by DNR. The Act now requires DNR to submit a SIP that provides for nonattainment throughout the NAA.²²

Unfortunately, DNR's draft rule and supporting RIR aim for attainment only at the Mott Street monitor. The RIR language highlights DNR's clear choice to deviate from the Clean Air Act's requirement to demonstrate attainment throughout the NAA. DNR first describes its approach to the nonattainment SIP for Jackson County, the state's other NAA, in terms consistent with Clean Air Act requirements: "The SO₂ emission limits and unit-specific fuel requirements in Table I ... are set at the level needed to demonstrate attainment of the 1-hour SO₂ NAAQS *within the Jackson County nonattainment area*."²³ DNR then uses different language – inconsistent with the Act's requirements – to discuss its approach to Jefferson County: "[T]he SO₂ emission limits in Table 1 ... *ensure compliance at the Mott Street monitor and support the attainment demonstration for the Jefferson County nonattainment area*."²⁴

In focusing on the area immediately surrounding the Mott Street monitor, DNR is ignoring large swaths of the NAA where the emission limits in the draft rule do not support an attainment demonstration. Figure 2 (see next page) shows the size of the 1.25 x 1.25 kilometer area DNR modeled to determine the limits in Table I of the draft rule relative to the size of the NAA. The modeled area encompasses 1.6 km², just 0.4% of the 382.9 km² NAA.

When DNR's attainment demonstration modeling is expanded from the tiny area around the Mott Street monitor to the entire NAA as required by the Clean Air Act, it predicts widespread NAAQS violations both north and south of the monitor, near Ameren Missouri's Meramec and Rush Island power plants. Figure 3 (see page 8) shows the results of DNR's model for a 250-meter receptor grid covering the entire NAA instead of the 1.6 km², monitor-focused receptor grid used by DNR. The shaded areas, which encompass approximately 40% of the NAA, exceed the NAAQS, and the peak concentration is 1425.6 ug/m³, over seven times the NAAQS.



In order for DNR to demonstrate attainment throughout the NAA as required by the Clean Air Act, it must substantially tighten the emission limits in the draft rule for Ameren Missouri's Labadie, Meramec, and Rush Island power plants and possibly add limits for additional sources as well. Only then will DNR be able to submit an acceptable SIP that demonstrates attainment throughout the NAA and not just in the largely-uninhabited area surrounding the Mott Street monitor.

²¹ DNR, 2010 1-Hour Sulfur Dioxide Boundary Recommendation and Technical Support Document for Recommendation of Nonattainment and Unclassifiable Boundaries in Missouri for the 2010 SO₂ National Ambient Air Quality Standard (June 30, 2011), submitted to EPA July 19, 2011.

²² EPA, Air Quality Designations for the 2010 Sulfur Dioxide (SO₂) Primary National Ambient Air Quality Standard, 78 Fed. Reg. 47191 (Aug. 5, 2013).

²³ RIR, §1 (emphasis added).

²⁴ *Id.* (emphasis added).

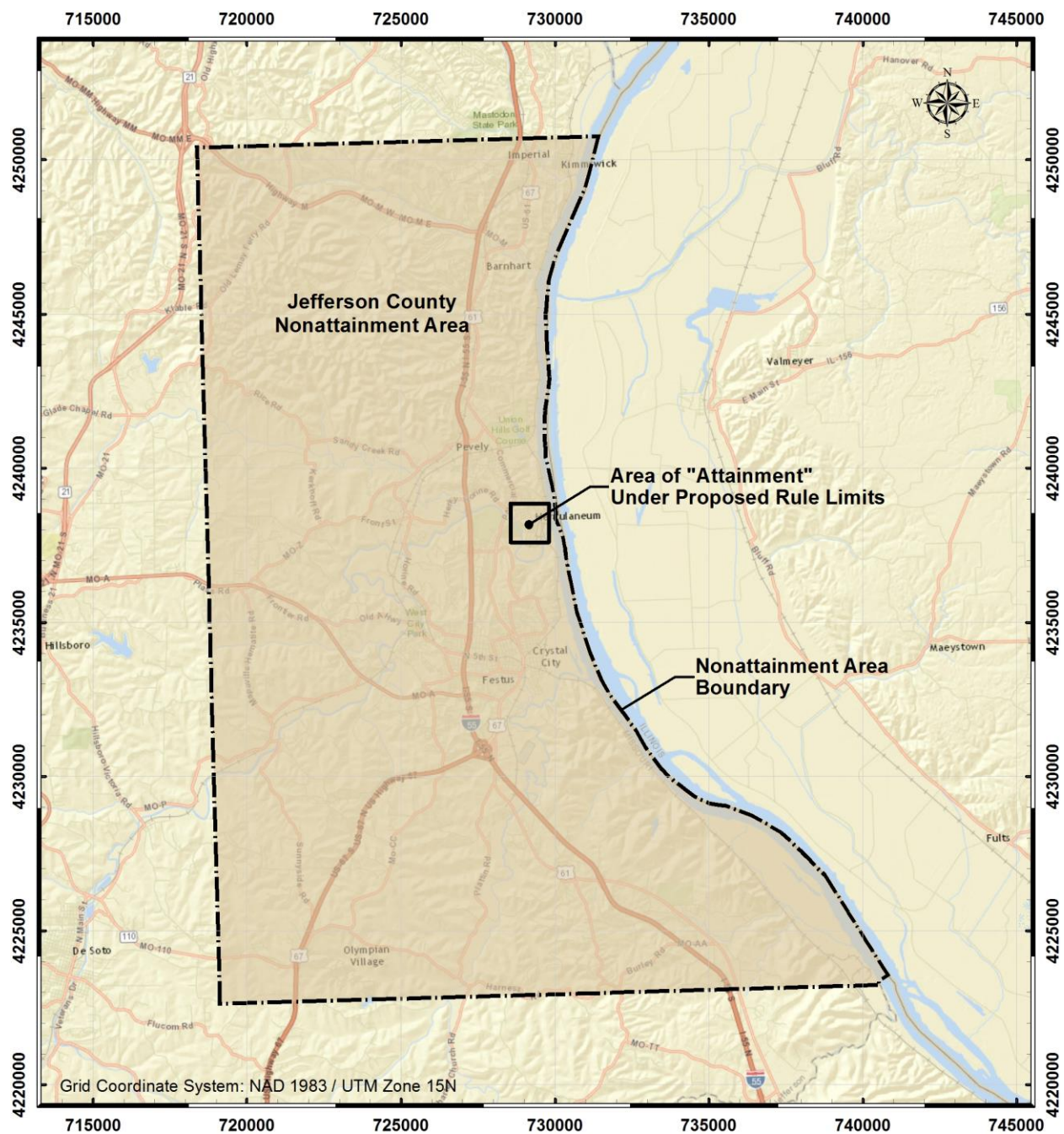


Figure 2: Size of DNR's 1.6 km² "attainment" area relative to the size of the Jefferson County NAA. The "attainment" area encompasses just 0.4% of the NAA.

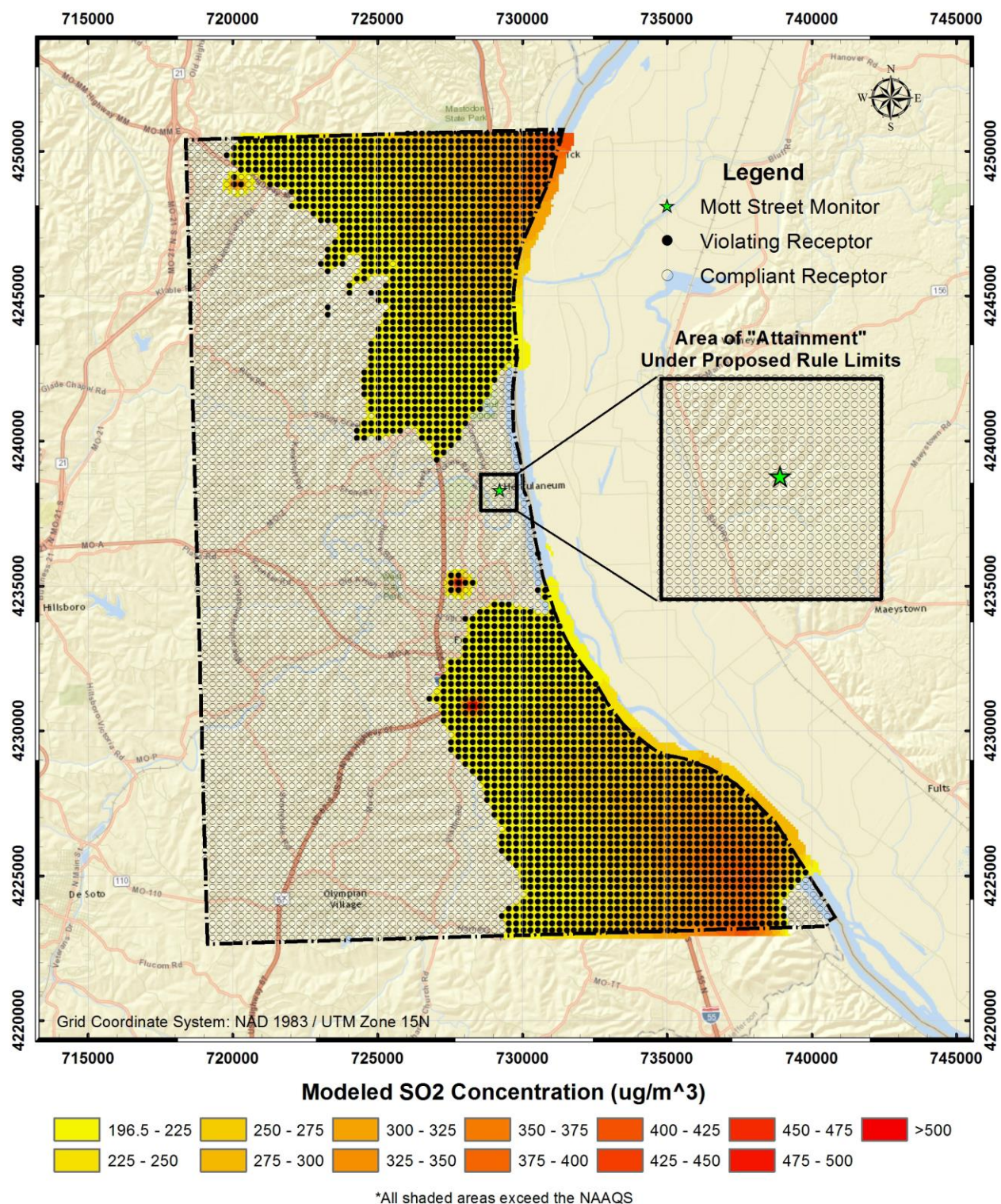


Figure 3: Results of DNR's attainment demonstration model for a 250-meter receptor grid covering the entire NAA instead of the 1.6 km², monitor-focused receptor grid used by DNR.

B. The Emission Limits in the Draft Rule Do Not Even Demonstrate Attainment in the Tiny Area Around the Mott Street Monitor.

Pursuant to the requirements of the Clean Air Act, EPA recommends that modeling to demonstrate future attainment of the SO₂ NAAQS in designated nonattainment areas follow its *Guideline on Air Quality Models* (Appendix W to 40 CFR 51), which provides recommendations and guidance on modeling techniques used to assess control strategies and determine emission limits.²⁵ The *Guideline* requires using maximum allowable emissions or federally enforceable permit limits as model input data for stationary sources – including nearby sources – for purposes of evaluating compliance with ambient standards.²⁶ EPA's SO₂ nonattainment SIP guidance emphasizes that allowable emissions should be used in dispersion modeling for SIP development purposes for all contributing sources not accounted for in background:

- The attainment plan for the affected area should also demonstrate, through the use of air quality dispersion modeling, *using allowable emissions* and supplemental analyses as appropriate, that the area will attain the standard by its attainment date.²⁷
- For a short term (i.e., 1-hour) standard, the EPA believes that dispersion modeling, *using allowable emissions* and addressing stationary sources in the affected area (and in some cases those sources located outside the nonattainment area which may affect attainment in the area) is technically appropriate, efficient and effective in demonstrating attainment in nonattainment areas because it takes into consideration combinations of meteorological and emission source operating conditions that can contribute to peak ground-level concentrations of SO₂.²⁸
- Consistent with past SO₂ modeling guidance ... and regulatory modeling for other programs ... dispersion modeling for the purposes of SIP development should be based on the use of *maximum allowable emissions*.²⁹

DNR's own modeling protocol states that model inputs will be based upon the criteria outlined in 40 CFR Appendix W and that allowable emissions will be used for all sources included in its model:

- The base run model analysis will reflect current, *permanent and enforceable allowable emissions* for each SO₂ source to be included in the model.³⁰
- The emission rates input into the air quality model will reflect current *permanent and enforceable emissions* for each SO₂ source to be included in the model.³¹

²⁵ EPA, Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions (Apr. 2014) at 13.

²⁶ 40 CFR 51 Appendix W, Table 8-1.

²⁷ EPA, Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions (Apr. 2014) at 9-10 (emphasis added).

²⁸ *Id.* at 12 (emphasis added).

²⁹ *Id.* at A-10 (emphasis added).

³⁰ DNR, 2010 1-Hour Sulfur Dioxide National Ambient Air Quality Standard Modeling and Analysis Protocol for First Round Nonattainment Areas (June 30, 2014) at 3 (emphasis added).

However, instead of using allowable emissions for all sources included in its model, DNR used allowable emissions for sources within the boundaries of the NAA and for nearby sources located in Illinois, and actual emissions for nearby sources located in Missouri but outside the boundaries of the NAA. There is no rational basis for using allowable emissions for some nearby sources and actual emissions for others, particularly in light of the fact that the nearby Illinois sources DNR included in its model are located farther outside the boundaries of the NAA than the nearby Missouri sources it included. Additionally, EPA guidance and DNR's own modeling protocol require the use of allowable emissions for all explicitly modeled sources.

When allowable emissions are used for all sources – including nearby sources in Missouri – in DNR's model, *it predicts NAAQS violations throughout the 1.6 km² area surrounding the Mott Street monitor and at the monitor itself. When taken one step further and expanded from the tiny area around the Mott Street monitor to the entire NAA as required by the Clean Air Act, it predicts NAAQS exceedances throughout the entire NAA.* Figure 4 (see next page) shows the results of DNR's model – using allowable emissions for all sources – for a 250-meter receptor grid covering the entire NAA instead of the 1.6 km², monitor-focused receptor grid used by DNR. The shaded areas exceed the NAAQS and cover 100% of the NAA.

III. EPA's Clean Data Policy Does Not Apply to the Jefferson County Nonattainment Area.

The RIR indicates that DNR is tentatively planning to apply to EPA for a clean data determination for the Jefferson County NAA. Because EPA's Clean Data Policy applies only when nonattainment areas have in fact attained the NAAQS prior to SIP submittal deadlines, it is inapplicable here.³² We urge DNR to cease the considerable effort it appears to be expending to attempt to prepare a clean data submittal, and to focus instead on preparing a bona fide SIP designed to achieve the SO₂ NAAQS throughout the Jefferson County nonattainment area, as required by the Clean Air Act.

EPA created its Clean Data Policy as “an incentive for attaining the SO₂ NAAQS *prior to the statutory deadline* for submitting an attainment demonstration under CAA section 191(a).”³³ The incentive aspect of the Policy recognizes that air quality in nonattainment areas is unhealthy, and the Policy encourages such areas to come into attainment before the statutory deadline.³⁴ DNR will not be submitting its SIP before the statutory deadline of April 6, 2015, rendering the Clean Data Policy inapplicable from the outset.

³¹ *Id.* at 4 (emphasis added).

³² This comment addresses the inapplicability of the EPA's Clean Data Policy to the Jefferson County NAA without conceding that the Policy is lawful. Whereas the EPA has codified the Policy for ozone and fine particulate matter, the Policy remains solely a creature of guidance with respect to SO₂.

³³ EPA, Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions (Apr. 2014) at 51 (emphasis added).

³⁴ “Nonattainment areas ... may be able to achieve emissions reductions ... that may be sufficient to attain the SO₂ NAAQS before SIPs are due under section 191(a).” *Id.* See also EPA's PM_{2.5} Clean Data Policy guidance: “Because PM_{2.5} exposure is linked to significant health effects, EPA encourages States to achieve reductions in PM_{2.5} and its precursor emissions as early as possible, especially in areas that are expected to be designated as nonattainment.” EPA, Clean Data Policy for the Fine Particle National Ambient Air Quality Standards (Stephen D. Page Memorandum) (Dec. 14, 2004), p. 1.

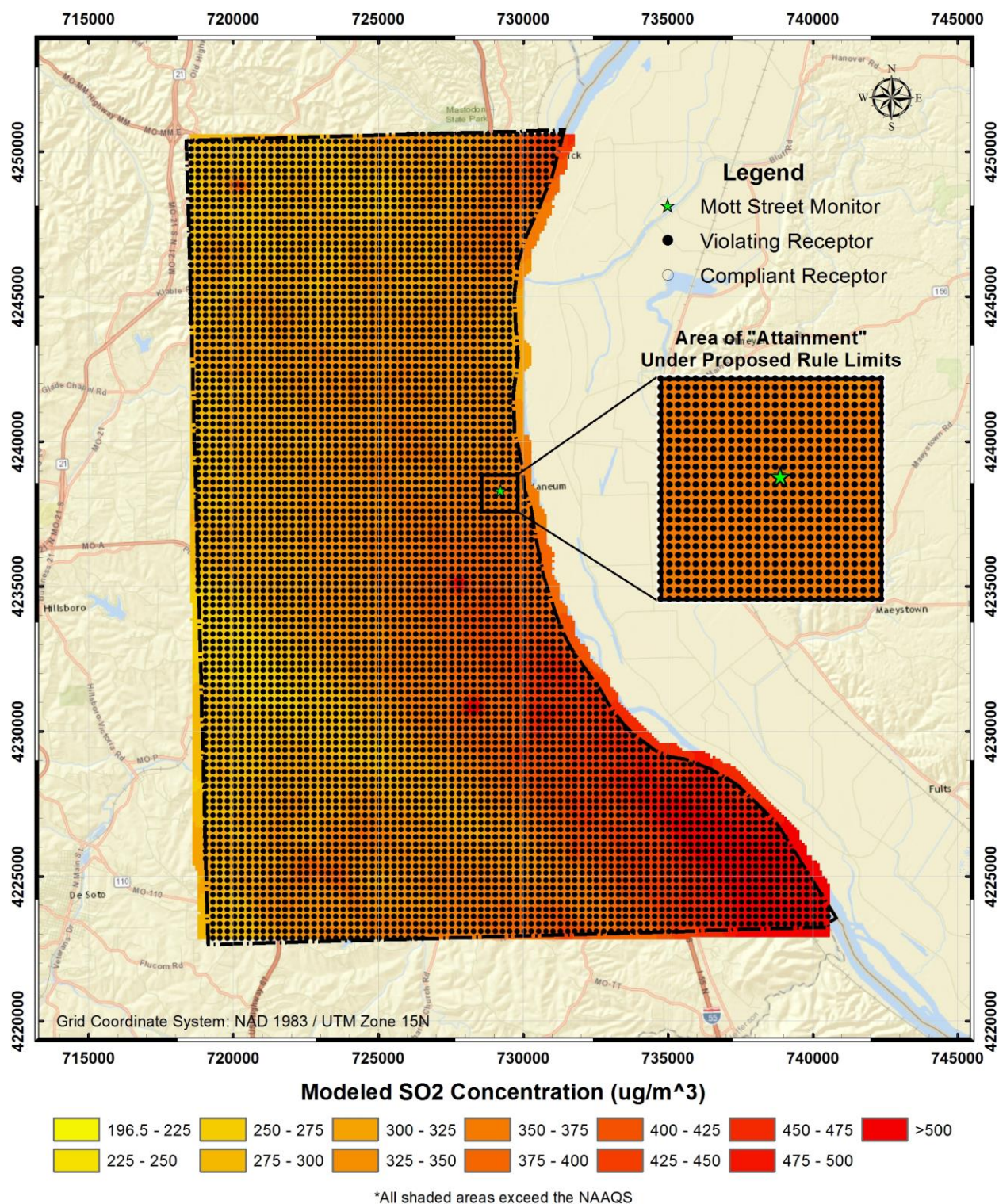


Figure 4: Model used by DNR to determine the emission limits in Table 1 of the draft rule run using allowable emissions for all sources and expanded to cover the entire NAA.

In addition, the purpose of the Clean Data Policy is to enable states to avoid preparing SIP submissions that are rendered superfluous when the nonattainment area actually achieves attainment in the absence of such submissions:

- [T]he EPA has issued “Clean Data” policy memoranda describing possible reduced regulatory requirements for *nonattainment areas that attain the NAAQS, but have not yet been designated as attainment*.³⁵
- [W]e have explained our view that it is reasonable to interpret the CAA section 172 statutory provisions regarding “reasonable further progress” and attainment demonstrations, along with certain other related attainment planning provisions, as not requiring further submissions to achieve attainment for *so long as the area is in fact attaining the NAAQS*.³⁶
- If an area has attained the NAAQS, there is no need to submit a plan demonstrating how the area will reach attainment.³⁷

The Jefferson County NAA is doubly disqualified for this Policy.

First, an attainment demonstration for the Jefferson County NAA is far from superfluous. DNR is not even attempting to prepare a bona fide attainment demonstration for the Jefferson County NAA. The emission limits in the draft rule aim solely to support an “attainment demonstration” for a tiny area at the Mott Street Monitor (and do not even achieve that goal). DNR’s earlier compliant modeling, which conformed with EPA’s SIP guidance, indicated that Ameren’s Rush Island, Meramec, and Labadie power plants would have to reduce their allowable emissions by 90%, 85%, and 75% respectively to support an area-wide attainment demonstration.^{38,39} Yet the limits in the draft rule require reductions of only 46%, 54%, and 63% for Rush Island, Meramec, and Labadie, respectively. As demonstrated above, modeling based on the emission limits in the draft rule results in concentrations in excess of the NAAQS across some 40% of the nonattainment area in areas clearly influenced by emissions from the Rush Island and Meramec plants. And modeling conducted in accordance with EPA guidance and DNR’s modeling protocol (*i.e.*, using allowable emissions for all modeled sources) shows *concentrations in excess of the NAAQS across the entire nonattainment area*.

Second, while recognizing that attainment demonstrations are based on allowable rather than actual emissions and that readings at the Mott Street Monitor are currently low, the nonattainment *area* is not, in fact, already in attainment. At the outset of its SIP development effort, DNR conducted modeling assessing the impact of individual sources’ actual emissions on SO₂ concentrations, without regard to contributing impacts from other sources in the area. DNR

³⁵ EPA, Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions (Apr. 2014) at 51 (emphasis added).

³⁶ *Id.* at 52 (emphasis added).

³⁷ *Id.* at 54 (emphasis added).

³⁸ DNR documentation of compliant modeling scenario, Draft 4-10-14 (submitted herewith as Exhibit A).

³⁹ DNR also determined that Anheuser-Busch and Mississippi Lime would have to reduce their allowable emissions by 95% and approx. 90%, respectively.

found that actual emissions from Ameren's Rush Island and Meramec plants each individually caused SO₂ concentrations well in excess of the NAAQS.⁴⁰

EPA's Clean Data Policy is designed to encourage states to achieve NAAQS ahead of the statutory deadline, and thereby enables states that have actually achieved the NAAQS to avoid preparing plans rendered unnecessary because their goals have already been reached. The Policy does not apply here, where DNR is apparently attempting to avoid preparing a bona fide attainment demonstration and there is every reason to believe that the *area* has not attained the NAAQS.

IV. The Closure of the Doe Run Smelter Supports Neither DNR's Unlawful SIP Approach Nor its Inappropriate Intention to Invoke the Clean Data Policy.

In the RIR, DNR describes the closure of the Doe Run Herculaneum smelter as the "main control strategy" for the Jefferson County NAA.⁴¹ This is not credible. The Consent Decree requiring Doe Run to close by December 2013 was published in October 2010, before the Jefferson County NAA was even proposed.⁴² Further, when DNR submitted its proposed nonattainment designation to EPA in 2011, it intentionally included Ameren's Rush Island plant within the nonattainment area. The Technical Support Document for the proposed boundary recommendation explains that the "boundaries of the recommended nonattainment area include both large sources in Jefferson County: the Doe Run lead smelter in Herculaneum and the Ameren Missouri – Rush Island Plant."⁴³ The Technical Support Document also indicates that SO₂ emissions from the Rush Island plant in 2009 (the year DNR used for its emission inventory) were, at 28,327 tons, significantly higher than Doe Run's emissions of 18,838 tons.⁴⁴ Indeed, Rush Island's annual SO₂ emissions exceeded Doe Run's in every year from 2009 through the smelter's closure at the end of 2013.⁴⁵ In the Technical Support Document's discussion of emission controls, DNR made no mention of the upcoming Doe Run closure.⁴⁶

Furthermore, DNR proceeded to prepare a SIP by modeling the Ameren plants and other large sources in and near the Jefferson County NAA, without any consideration of contributions from soon-to-be-closed Doe Run. DNR modeled impacts of the three Ameren plants, using actual emissions, in October 2013 to identify the sources that might need to reduce emissions in order

⁴⁰ DNR, First Round: 2010 1-hour SO₂ Nonattainment Area Modeling, Oct. 30, 2013 (submitted herewith as Exhibit B).

⁴¹ RIR, § 1.

⁴² *United States of America and State of Missouri v. The Doe Run Resources Corporation, et al.*, 4:10-cv-01895-JCH (E.D.Mo.), Consent Decree published for public comment in October 2010, <http://www2.epa.gov/enforcement/doe-run-resources-corporation-settlement>, and ultimately filed with the Court December 2011, http://www.epa.gov/region7/cleanup/doe_run/pdf/consent_decree.pdf.

⁴³ DNR, 2010 1-Hour Sulfur Dioxide Boundary Recommendation and Technical Support Document for Recommendation of Nonattainment and Unclassifiable Boundaries in Missouri for the 2010 SO₂ National Ambient Air Quality Standard (Adopted by Air Conservation Commission May 26, 2011), § 8.3, p. 23.

⁴⁴ *Id.*, Appendix 1.

⁴⁵ See attached Exhibit C, Annual SO₂ Emissions Comparison Table prepared by the Clinic using data obtained from EPA and DNR.

⁴⁶ *Id.*, § 4.2, p. 13.

for the Jefferson County nonattainment area to achieve the SO₂ NAAQS. As noted above, DNR then prepared a compliant modeling scenario that required significant reductions in allowable emissions from the three Ameren plants – an exercise that would have been entirely unnecessary if the Doe Run closure, by itself, was deemed sufficient to attain the NAAQS across the nonattainment area. This compliant modeling scenario assumed that Doe Run was no longer a source of SO₂ emissions, yet substantial reductions were still required from the Ameren plants before DNR could demonstrate attainment throughout the NAA.

While the closure of the Doe Run smelter has certainly resulted in low SO₂ concentrations at the Mott Street monitor, it has not brought the entire Jefferson County *nonattainment area* – whose designation was proposed by DNR and approved by EPA – into attainment.

V. Conclusion

We urge DNR to revise the emission limits in Table I to reduce allowable emissions for sources in and contributing to the Jefferson County NAA in order to support an attainment demonstration for the entire nonattainment area. We also urge DNR not to expend public resources pursuing an inappropriate clean data finding that is neither justified nor protective of the Jefferson County residents at risk of breathing unhealthy air.

Respectfully submitted,



Interdisciplinary Environmental Clinic
Washington University School of Law
Maxine I. Lipeles, J.D., Co-Director
Ken Miller, P.G., Environmental Scientist
Danelle Gagliardi, Mo.Sup.Ct.R.13 certified law student⁴⁷

On behalf of the Sierra Club

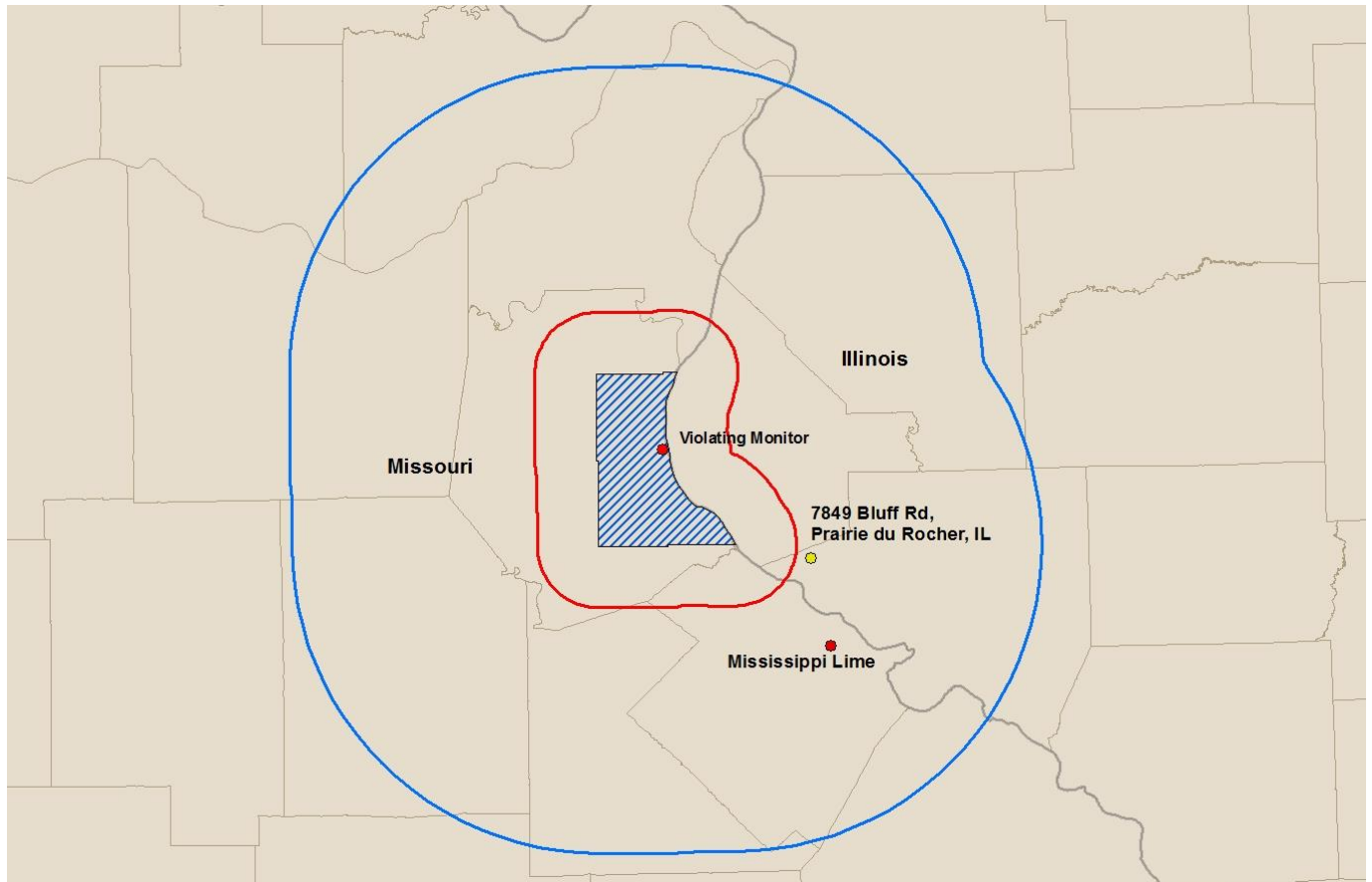
Cc: Karl Brooks, Regional Administrator, EPA Region 7
Josh Tapp, Chief, Air Planning & Development Branch, EPA Region 7

Enclosures

⁴⁷ Law student Alex Chang and engineering student Xiaodi “Daniel” Sun also participated in the preparation of this letter.

Draft 4-10-14

Map of Jefferson County SO₂ NAA with 10km and 50 km Buffer areas and Violating Monitor



Distance from Mississippi Lime in Missouri to Violating Monitor in Jefferson County: 42.1 km

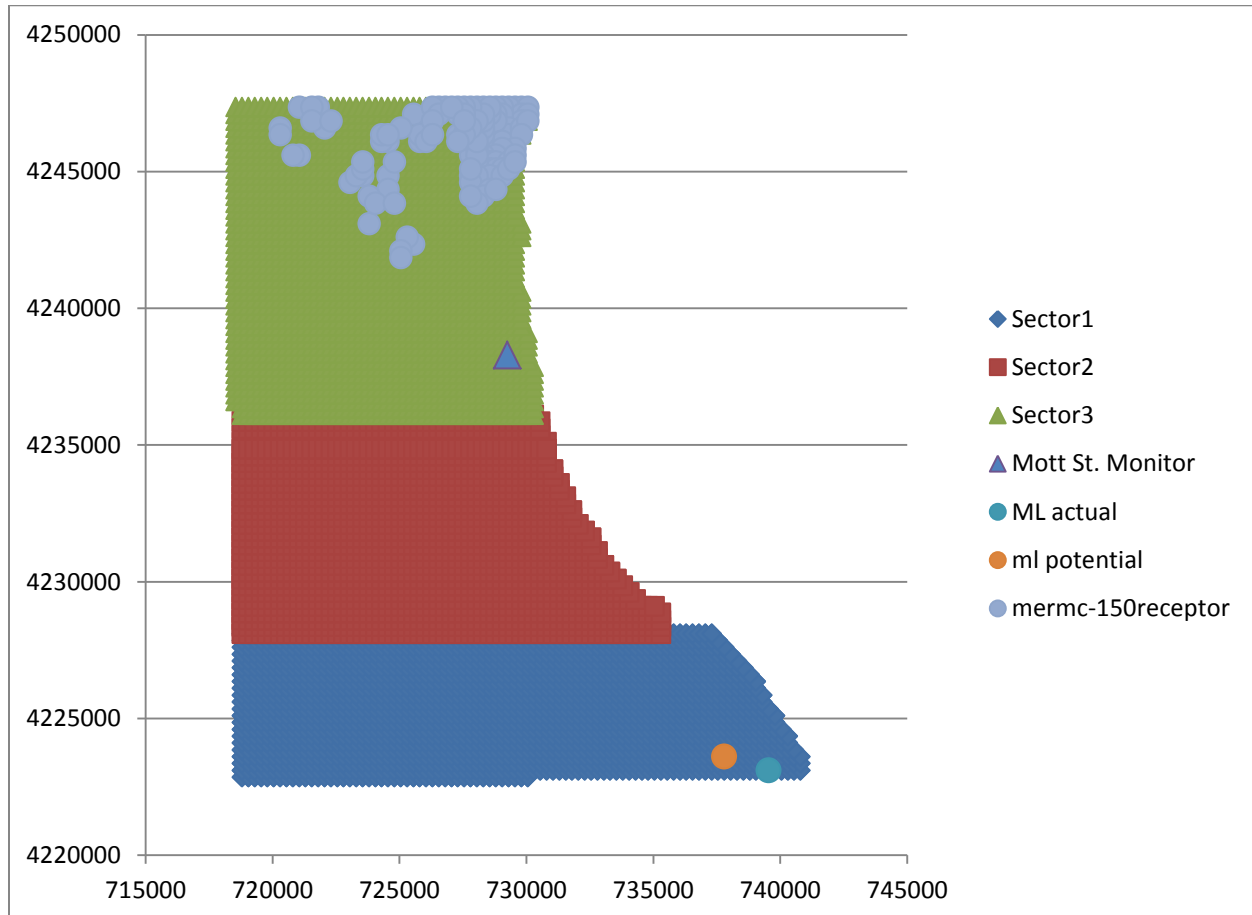
Distance from proposed Mississippi Lime in Illinois to Violating Monitor in Jefferson County: 29.9 km

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****This is run3, where ML 5% above the actual Rush Island 90% reduction from PTE. Meramec 85% reduction from PTE**

****Labadie 75% reduction from PTE and AB 95% reduction from PTE. AA 4/14/14**

**** All NAA Sources in compliance with these reductions.**



Input Data:

Rush

* 90% control of potential emissions 1716.15 g/s

SO SRCPARAM RUSH1 171.61577 204.97 428.72 33.02 6.31

SO SRCPARAM RUSH2 171.61577 204.97 436.111 32.97 6.31

SO SRCPARAM RUSH3 0.882 84.58 577.594 10.06 1.52

Meramec

** 85% from poetential 453.82 g/s

SO SRCPARAM MERMC1 68.073 76.2 419.7055556 30.975808 3.3528

** 85% from poetential 453.82 g/s

SO SRCPARAM MERMC2 68.073 76.2 434.4833333 30.214316 3.3528

** 85% from poetential 919.23 g/s

SO SRCPARAM MERMC3 137.8845 106.68 462.0944444 41.270428 4.2672

** 85% from poetential 1096 g/s

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SO SRCPARAM MERMC4 164.4 106.68 446.2055556 37.57676 4.8768

SO SRCPARAM MERMC6 0.33683433 9.7536 838.7055556 31.63824 3.6576

** 85% from poetential 42.3 g/s

SO SRCPARAM MERMC62 6.345 8.99 838.71 20.97 4.75

Labadie

** using 75 reduction % of PTE AA 4/1/14

SO SRCPARAM LABADIE1 934.85325 213.36 443.0648912 34.72064305 6.2484

SO SRCPARAM LABADIE2 934.85325 213.36 442.4920016 35.55833613 6.2484

SO SRCPARAM LABADIE3 923.362275 213.36 433.2043723 34.51691769 6.2484

SO SRCPARAM LABADIE4 923.362275 213.36 441.7078451 34.94594478 6.2484

SO SRCPARAM AB1 108.9947168 68.58 438.7055556 6.46684 3.048

SO SRCPARAM AB5C 100.1908579 68.58 460.9277778 5.842 3.048

SO SRCPARAM AB8B 39.44299794 68.58 449.8166667 5.62864 3.048

SO SRCPARAM AB9B 38.6865291 68.58 449.8166667 5.62864 3.048

SO SRCPARAM AB381 41.71814671 6.096 283.15 21.336 0.3048

October 30, 2013

First Round: 2010 1-hour SO₂ NAAQS Nonattainment Area Modeling

Summary

Staff has completed preliminary modeling for Missouri's two SO₂ nonattainment areas (NAA): Jefferson County and Jackson County. Based on the results from these models runs, staff has identified 12 sources with a contributing impact on the nonattainment area. It should be noted that two of the 12 sources are located in Kansas.

An individual email will be sent to each facility in Table 1 and Table 2 as an initial contact. The email will contain source information specific to each facility and will request confirmation of the information from the facility.

Table 1: Summary of facilities in the Jefferson County NAA with maximum impacts greater than the established background (based on actual emissions from 2012 EIQ)

| Facility | Max Impact (µg/m ³) | Anticipated Applicable Federal Regulations |
|--|---------------------------------|---|
| Ameren Meramec* | 298.99 | MATS |
| Ameren Rush Island* | 255.17 | MATS |
| River Cement ** | 108.5 | Undetermined |
| Ameren Labadie* | 67.057 | MATS |
| Mississippi Lime | 47.9 | Boiler MACT |
| St. Gobain Containers | 33.18 | Boiler MACT |
| <i>Established Background</i> | | 23.58 µg/m ³ |
| <i>2010 1-hour SO₂ NAAQS (75 ppb)</i> | | <i>Equivalent to 196.5 µg/m³</i> |

* Continuous Emissions Monitoring data available for only certain individual emission units.

** Currently being reviewed for source parameter accuracy.

Table 2: Summary of facilities in the Jackson County NAA with maximum impacts greater than the established background (based on actual emissions from 2012 EIQ)

| Facility | Max Impact (µg/m ³) | Anticipated Applicable Federal Regulations |
|--|---------------------------------|---|
| Veolia Energy | 392.97 | Boiler MACT |
| KCPL Hawthorn* | 75.47 | MATS |
| IPL Blue Valley* | 69.44 | MATS |
| BPU Quindaro (KS)* | 56.67 | MATS |
| BPU Nearman (KS)* | 36.17 | MATS |
| KCPL Sibley* | 35.24 | MATS |
| <i>Established Background</i> | | 34.06 µg/m ³ |
| <i>2010 1-hour SO₂ NAAQS (75 ppb)</i> | | <i>Equivalent to 196.5 µg/m³</i> |

* Continuous Emissions Monitoring data available for only certain individual emission units.

October 30, 2013

Summary Details

A modeling protocol, describing the meteorological data used in the model and outlining the methodology used in our modeling approach, was prepared by staff and submitted to the EPA on Oct. 23, 2013 for review. AERMOD is the dispersion model used to determine compliance with the NAAQS. For this round of attainment demonstrations, compliance with the NAAQS was evaluated only in the nonattainment areas. As such, the receptor grid is contained exclusively within the NAA boundaries.

The impact of sources within the nonattainment area and within 50 km of the nonattainment area was evaluated. A buffered approach was developed to determine the source inventory for each nonattainment area. This approach (Table 3) used proximity to the nonattainment area, actual reported emissions, and calculated potential emissions as indicators for inclusion in the model inventory.

Table 3: Summary of buffered approach

| Buffer level | Sources for inclusion in the inventory |
|--|---|
| Nonattainment Area | All SO ₂ sources |
| < 10 km from the NAA boundary | Sources with a PTE > 100 tpy |
| between 10 & 50 km from the NAA boundary | Sources with actual emissions > 100 tpy |

Initial Base Run

In the initial run, sources were modeled using their annual reported emissions and release parameters, as reported in MOEIS. For Electric Generating Units (EGUs) that are required to use a Continuous Emissions Monitoring System (CEMS) and report those to the EPA's Clean Air Markets Division (CAMD) database, the CEMS data was used in lieu of actual reported MOEIS data. The 95th percentile of total emissions was chosen as the hourly emission rate in the model to exclude extreme anomalies that do not necessarily represent maximum emissions associated with peak loads at worst-case operating conditions.

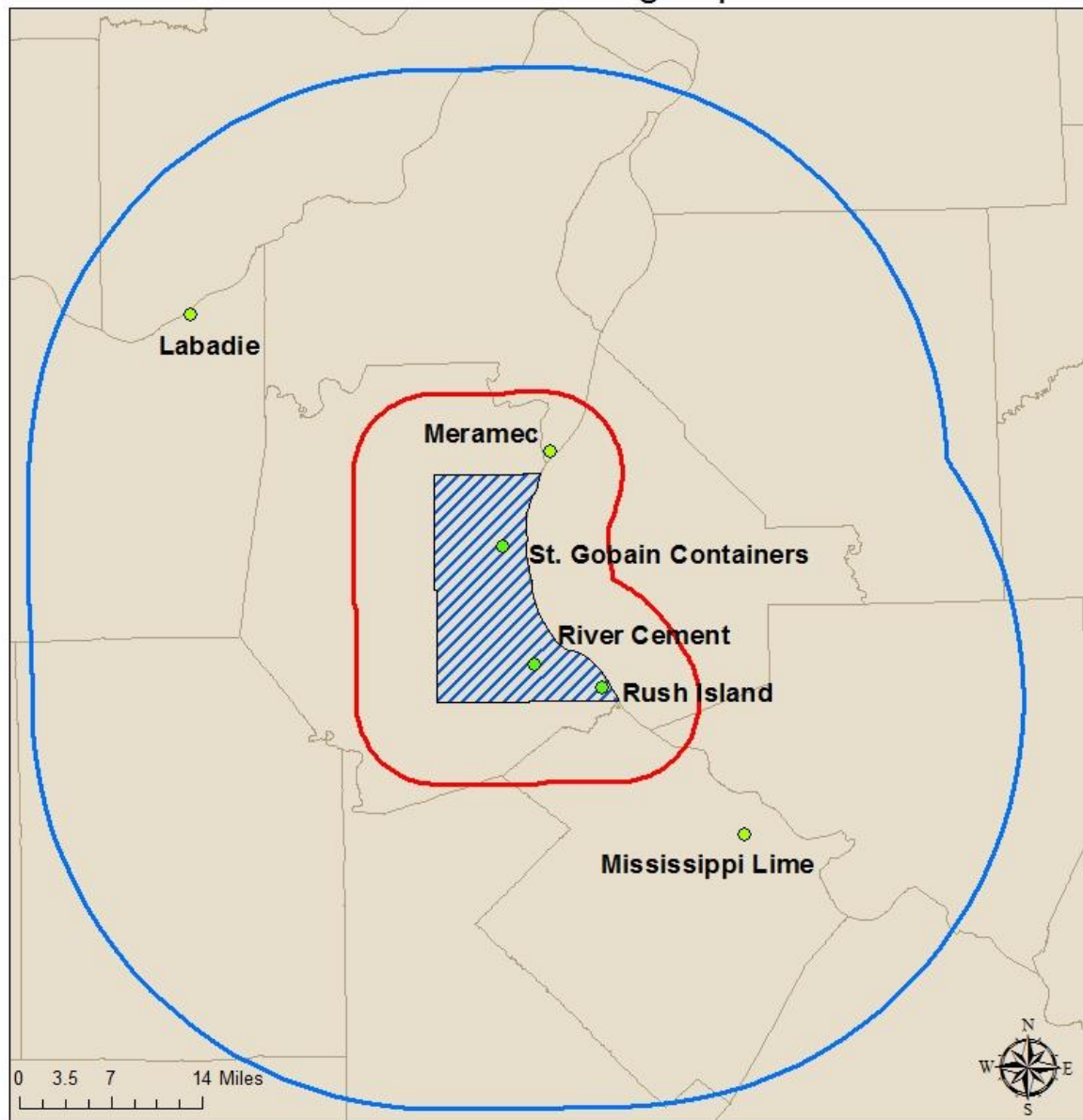
A representative background concentration value [see value in Tables 1 & 2] was established for each area based on data obtained from area monitors. This background value accounts for any natural emissions as well as sources not explicitly included in the model inventory.

Results from the initial model run were analyzed to determine which facilities had a contributing impact within the nonattainment area. For this initial analysis, contributing impact is defined as having an impact greater than the established background concentration.

Future Considerations

Federal regulations such as the Mercury and Air Toxics Standards (MATS) MACT and the Boiler MACT may provide SO₂ emission reductions that could be applied in the attainment demonstrations. The MATS MACT includes an alternative SO₂ limit in place of the Hydrogen Chloride (HCl) limits for qualifying EGUs. The Boiler MACT allows the use of SO₂ CEMS for demonstrating compliance with HCl emission limits, with special conditions. Co-benefits for potential SO₂ emission reductions associated with controlling Hazardous Air Pollutant (HAP) emissions, specifically acid gas HAPs, are expected from units subject to the Boiler MACT. Certain provisions of both the MATS [40 CFR 63 Subpart 5U] and the Boiler MACT [40 CFR 63 Subpart 5D] are currently being reconsidered or proposed for amendment.

Jefferson County NAA with Buffers and Initial Model Run Contributing Impact Sources



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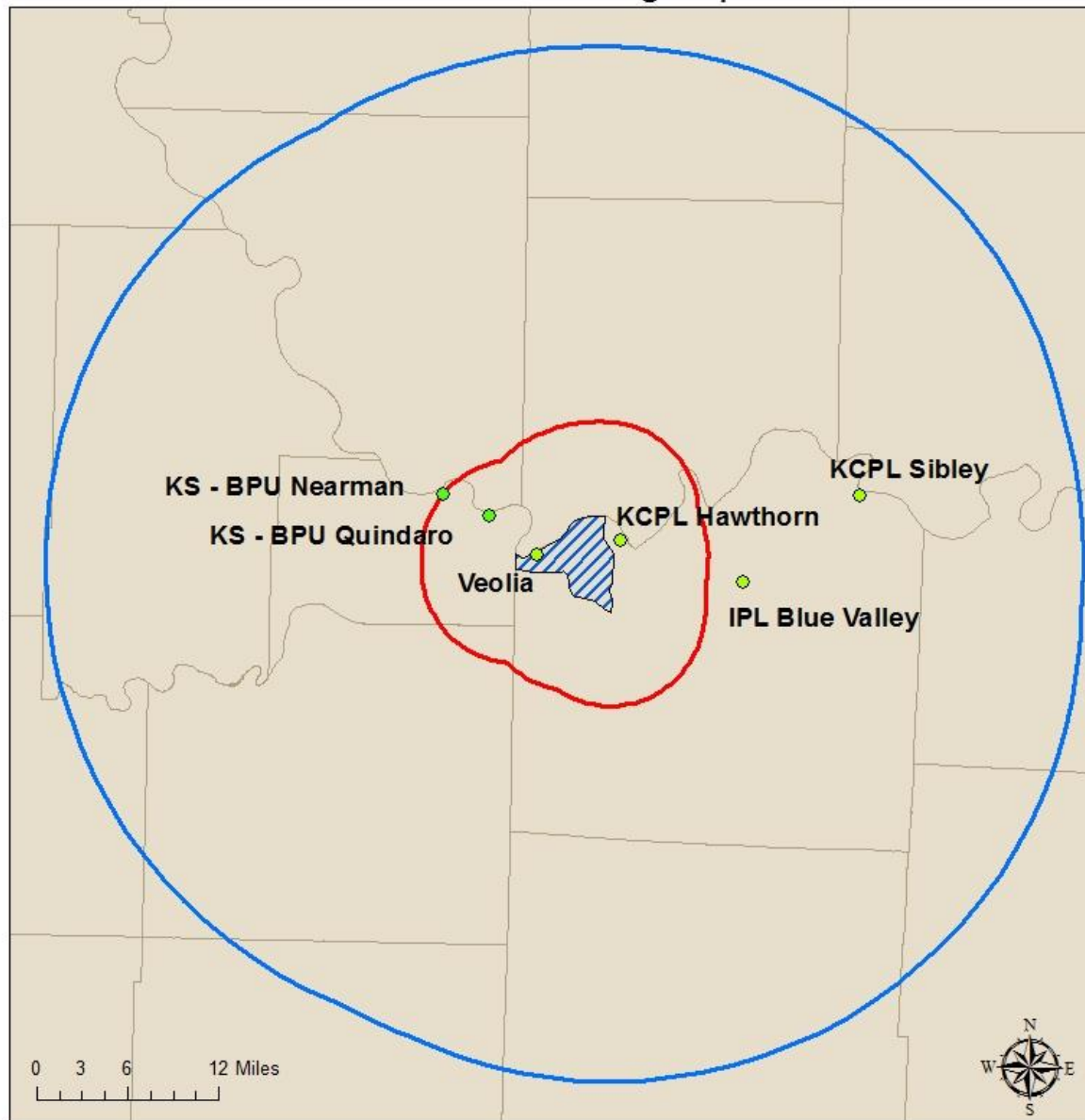
Division of Environmental Quality
Air Pollution Control Program
Prepared: October 29, 2013

Legend

- Impacting Sources (As shown in List)
- Jefferson 50 km Buffer
- Jefferson 10 km Buffer
- Jefferson County NAA

October 30, 2013

Jackson County NAA with Buffers and Initial Model Run Contributing Impact Sources



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Division of Environmental Quality
Air Pollution Control Program
Prepared: October 29, 2013

Legend

- Impacting Sources (As shown in List)
- Jackson 50 km Buffer
- Jackson 10 km Buffer
- Jackson County NAA

ANNUAL SO2 EMISSIONS COMPARISON TABLE

| | Doe Run | Data Source | Meramec Plant | Data Source | Rush Island Plant | Data Source |
|------|---------|-------------|---------------|-------------|-------------------|-------------|
| 2000 | 28833.4 | 2 | 17929.7 | 1 | 26899.3 | 1 |
| 2001 | 26639.7 | 2 | 22635.4 | 1 | 19874.6 | 1 |
| 2002 | 15223.4 | 2 | 16446.5 | 1 | 23255.5 | 1 |
| 2003 | 14866.3 | 2 | 15450.9 | 1 | 24993.2 | 1 |
| 2004 | 16679.7 | 2 | 29685.6 | 1 | 22917.8 | 1 |
| 2005 | 41845.2 | 2 | 18013.4 | 1 | 28385.1 | 1 |
| 2006 | 44306.6 | 2 | 20661.5 | 1 | 28674.5 | 1 |
| 2007 | 32904 | 3 | 22767.3 | 1 | 22461.7 | 1 |
| 2008 | 35998 | 3 | 20828.5 | 1 | 29594.3 | 1 |
| 2009 | 18842 | 3 | 16855.7 | 1 | 28326.8 | 1 |
| 2010 | 19847 | 4 | 17074.9 | 1 | 26066.1 | 1 |
| 2011 | 15229 | 4 | 15282.5 | 1 | 28036 | 1 |
| 2012 | 17889 | 4 | 9532.7 | 1 | 20422.8 | 1 |
| 2013 | 11462 | 5 | 5962.4 | 1 | 19587.2 | 1 |

Data Sources

- 1 EPA Air Markets Program Data
- 2 Facility Title V Permit
- 3 SO2 Boundary Recommendation for Missouri
- 4 DNR SO2 Planning Data Spreadsheet (MoEIS)
- 5 DNR Modeling Input